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Mr. Wilks

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF PUBLIC ROADS  
DIVISION OF AGRICULTURAL ENGINEERING

S. H. McCrory, Chief.

MONTHLY NEWS LETTER

WASHINGTON, APRIL 17, 1931

.....  
: IN SEVERAL INSTANCES RECENTLY, FORM 1034 VOUCHERS :  
: HAVE BEEN SENT IN COVERING REPAIRS OR ALTERATIONS TO :  
: EQUIPMENT LOANED TO US BY VARIOUS AGENCIES. THE :  
: COMPTROLLER GENERAL HAS RULED THAT THE GOVERNMENT MAY NOT :  
: PAY SUCH ITEMS UNLESS A WRITTEN AGREEMENT PROVIDES FOR :  
: SUCH PAYMENT. SUCH AN ARRANGEMENT MAY BE MADE EITHER :  
: THROUGH AN EXCHANGE OF LETTERS PRIOR TO THE LOAN, OR BY :  
: INCLUDING THE NECESSARY PROVISION IN AN AGREEMENT COVER- :  
: ING COOPERATIVE WORK. IN THE CASE OF LETTERS, IT MUST BE :  
: SHOWN THAT THE LOANER AGREES THAT THE DEPARTMENT WILL :  
: ASSUME THE COST OF REPAIRS AND ALTERATIONS AND THAT THE :  
: EQUIPMENT WILL BE RETURNED IN AS GOOD ORDER AS RECEIVED, :  
: SUBJECT, HOWEVER, TO THE ORDINARY WEAR AND TEAR OF NORMAL :  
: USE. THE ORIGINAL COPIES OF SUCH CORRESPONDENCE SHOULD :  
: BE SENT IN FOR FILE HERE. COPIES WILL THEN BE MADE HERE :  
: AND ATTACHED TO VOUCHERS COVERING SUCH ITEMS OF EXPENSE. :  
: EACH SUCH VOUCHER MUST CARRY A STATEMENT SHOWING THE :  
: NATURE OF THE REPAIRS OR ALTERATIONS, AND THE NECESSITY :  
: OF THE SAME FROM THE STANDPOINT OF OUR WORK. :  
: .....

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: ALL AGREEMENTS COVERING GARAGE RENTAL, GASOLINE :  
: AND OIL PURCHASES, ETC. EXECUTED IN THE FIELD AND EXPIRING :  
: JUNE 30, MUST BE RENEWED FOR THE FISCAL YEAR 1932. THESE :  
: SHOULD BE IN THE WASHINGTON OFFICE IN AMPLE TIME SO AS TO :  
: ENABLE THEM TO BE ACCEPTED BY JULY 1. COMPETITION MUST :  
: BE SECURED WHERE THE REGULATIONS SO SPECIFY, OR A VALID :  
: REASON MUST BE GIVEN FOR NOT DOING SO. THE NEW AGREEMENTS :  
: SHOULD BE MADE IN THE NAME OF THE BUREAU OF AGRICULTURAL :  
: ENGINEERING. :  
: .....

S. H. McCrory spent April 16 and 17 in the New England States  
conferring with R. B. Gray and others regarding the work to be done in  
corn borer control in the eastern infestation area.



# THE HISTORY OF THE CITY OF BOSTON

FROM THE FIRST SETTLEMENT  
TO THE PRESENT TIME

BY NATHANIEL BENTLEY

.....  
The first settlement of the city of Boston was made in the year 1630, by a company of Puritan settlers, who came from England, and were led by John Winthrop. They founded the city on the site of the present city, and named it "Boston" in honor of Boston, Lincolnshire, in England. The city grew rapidly, and by the year 1690 it had become one of the largest and most important cities in the New England colonies. It was the center of the Puritan movement, and the seat of the Massachusetts Bay government. It was also the site of many important events in the history of the American Revolution, including the Boston Tea Party and the Battle of Boston.

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The city of Boston has since that time continued to grow and prosper. It has become one of the largest and most important cities in the United States. It is the center of the New England region, and the seat of the Commonwealth of Massachusetts. It is also the site of many important events in the history of the United States, including the Boston Tea Party and the Battle of Boston.

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The city of Boston is a city of many firsts. It was the first city to be founded by Puritan settlers, and the first city to be named in honor of a city in England. It was the first city to become one of the largest and most important cities in the New England colonies, and the first city to become one of the largest and most important cities in the United States.

S. P. LYLE EXPECTS TO SPEND THE WEEK OF APRIL 20 TO 25 IN OHIO CONFERRING WITH EXTENSION ENGINEERS OVERHOLT, TWITCHELL AND BARDEN ON EXTENSION PROJECTS ON DRAINAGE, IRRIGATION, FARM MACHINERY AND FARM STRUCTURES. HE WILL BE IN WEST VIRGINIA APRIL 27 - 30, INCLUSIVE, CONFERRING WITH EXTENSION WORKERS ON DRAINAGE PROJECTS. HE WILL BE IN MISSOURI ON EXTENSION WORK THE WEEK OF MAY 18 - 23, AND IN NEBRASKA ON IRRIGATION WORK MAY 25 - 29.

MR. LYLE WILL REVIEW THE PLANS OF WORK OF THE STATE EXTENSION ENGINEERS DURING THE FIRST PART OF MAY, AND WILL BE GLAD TO RECEIVE SUGGESTIONS FROM ANY MEMBERS OF THIS STAFF, ESPECIALLY THE FIELD WORKERS, AS TO THE ATTENTION THAT SHOULD BE GIVEN THEIR FIELD OF WORK IN STATE EXTENSION ACTIVITIES.

ELMER JOHNSON, WHO HAS BEEN ON LEAVE FOR SEVERAL MONTHS ON ACCOUNT OF ILLNESS, REPORTED FOR DUTY APRIL 1. MR. JOHNSON HAS BEEN ASSIGNED, TEMPORARILY, TO ASSEMBLING INFORMATION NEEDED IN THE STUDY OF SUGAR CANE HARVESTING, WHICH WILL BE TAKEN UP AT THE BEGINNING OF THE NEXT FISCAL YEAR.

J. T. BOWEN HAS COMPLETED PLANS AND SPECIFICATIONS FOR A REFRIGERATION PLANT TO BE INSTALLED AT THE WASHINGTON ZOO. HE HAS NEARLY COMPLETED A BULLETIN ON "REFRIGERATION IN THE HANDLING, PROCESSING AND STORING OF MILK AND MILK PRODUCTS."

G. R. BOYD CONFERRED, ON APRIL 16, WITH PROFESSOR BLASINGAME OF THE PENNSYLVANIA STATE COLLEGE, REGARDING PROPOSED COOPERATIVE STUDIES IN LAND DEVELOPMENT.

EDWIN D. GORDON WAS TRANSFERRED FROM THE BUREAU OF CHEMISTRY AND SOILS, EFFECTIVE APRIL 1, AS ASSOCIATE AGRICULTURAL ENGINEER TO TAKE UP THE FORAGE DRYING STUDIES AT JEANERETTE, LA., A COOPERATIVE PROJECT WITH PLANT INDUSTRY AND ANIMAL INDUSTRY.

DAN H. WADE HAS BEEN APPOINTED SENIOR ARCHITECTURAL DRAFTSMAN, EFFECTIVE APRIL 6. MR. WADE WAS FORMERLY ENGAGED IN ARCHITECTURAL DRAFTING WORK AT MEMPHIS, TENN.

M.A.R. KELLEY HAS RETURNED FROM GENESEE DEPOT, WISCO., WHERE HE WAS ENGAGED DURING THE WINTER MONTHS, ON A STUDY OF DAIRY BARN VENTILATION. THE OBJECT OF THIS EXPERIMENT WAS TO DETERMINE THE EFFECT OF SUDDEN CHANGES IN STABLE TEMPERATURES ON THE PRODUCT OF MILK BY COWS OF MEDIUM CAPACITY, AND THE CONSEQUENT NECESSITY OF INSULATION IN THE CONSTRUCTION OF DAIRY BARNs AS A FACTOR IN TEMPERATURE MAINTENANCE. A FURTHER OBJECT WAS TO DETERMINE THE OPTIMUM STABLE AIR CONDITION OR THAT AT WHICH MEDIUM CAPACITY COWS WILL PRODUCE THE MAXIMUM QUANTITY OF MILK CONSISTENT WITH THE HEALTH AND COMFORT OF THE ANIMALS.





THE A.S.A.C. COMMITTEE ON FUELS AND LUBRICANTS HELD THEIR INITIAL MEETING AT TOLEDO APRIL 1. ON APRIL 2 THEY VISITED THE RESEARCH LABORATORIES OF THE ETHYL CORPORATION AND GENERAL MOTORS IN DETROIT.

TWO BEET DRILLS WERE ALTERED IN THE TOLEDO SHOPS TO FACILITATE THEIR USE IN THE FIELD IN CONNECTION WITH THE BEET MACHINERY INVESTIGATIONS.

A. H. GLAVES RETURNED TO TOLEDO APRIL 7 FROM STATE COLLEGE, PA., WHERE HE SPENT SEVERAL DAYS ASSISTING IN THE COOPERATIVE PLOWING PROJECT WITH THAT STATION.

MESSRS. ASHBY AND GLAVES HAVE JUST COMPLETED THE MANUSCRIPT OF A BULLETIN ON PLOWING.

I. F. REED SPENT APRIL 15 NEAR BOWLING GREEN, OHIO, DEMONSTRATING A THREE-ROW CULTIVATOR STALK SHAVER AND A FOUR-BAR CORN BORER SIDE-DELIVERY RAKE. HE PLANS ON SPENDING THE NEXT FEW DAYS IN INDIANA ON A SIMILAR MISSION.

W. W. McLAUGHLIN WAS AT MEDFORD, OREGON, APRIL 3 AND 4 TO ASSIST IN MAKING FINAL SELECTION OF A TRACT OF LAND TO BE USED IN A LONG-TIME IRRIGATION AND SOIL MANAGEMENT PROJECT IN COOPERATION WITH THE BUREAU OF PLANT INDUSTRY AND OREGON AGRICULTURAL EXPERIMENT STATION. THE 34-ACRE TRACT SELECTED HAS ABOUT 24 ACRES IN BEARING PEAR TREES. THE LAND WAS PURCHASED THROUGH THE AGRICULTURAL EXPERIMENT STATION BY JACKSON COUNTY AT A COST OF \$20,000. AN ADDITIONAL \$5,000 WILL BE USED FOR BUILDINGS AND OTHER PERMANENT IMPROVEMENTS. A SPECIAL ANNUAL APPROPRIATION OF \$15,000 BECOMES AVAILABLE JULY 1 FROM GOVERNMENT FUNDS FOR CARRYING ON THE INVESTIGATIONS. ARCH WORK, ASSISTANT IRRIGATION ENGINEER OF OUR DIVISION, WILL BE IN IMMEDIATE CHARGE OF THE IRRIGATION STUDIES, UNDER THE GENERAL SUPERVISION OF M. R. LEWIS, IRRIGATION ENGINEER.

L. M. WINSOR MADE A COMPLETE INSPECTION OF THE STRUCTURES ON THE BEAR BAY PROJECT AND FOUND NO EVIDENCE WHATEVER THAT ICE ACTION HAS DONE ANY DAMAGE. THE GATES AT THE RIVER CONTROL REMAIN IN PERFECT CONDITION AFTER THE THAW, EVEN THOUGH THE RADIAL ARMS WERE ENCASED IN ICE 30 INCHES THICK DURING MORE THAN 3 MONTHS. THE DIKES WERE NOT INJURED EVEN THOUGH ICE SHEETS WERE FORCED FAR UP THE SLOPES ON BOTH SIDES. ONE CONTRACTOR CONTINUED OPERATIONS ON THE BEAR BAY WORK THROUGHOUT THE WINTER. THE OTHER CONTRACTOR RESUMED OPERATIONS LATE IN MARCH. IT IS EXPECTED THE WORK WILL BE COMPLETED BY SEPTEMBER OF THIS YEAR. IT IS INTERESTING TO NOTE THAT MUSK RATS ARE BURROWING INTO THE DIKES, ALMOST INVARIABLY ADJACENT TO SPILL BOXES, WITHIN A VERY FEW MONTHS AFTER THE WORK HAS BEEN COMPLETED. THEIR NESTS IN MANY INSTANCES ARE BUILT FAR FROM A FOOD SUPPLY EXCEPT FOR SUCH FOOD AS FLOATS IN THE WATER.

MR. WINSOR DIRECTED OPERATIONS IN RAISING A FLOOD CONTROL STRUCTURE ON COTTONWOOD CREEK AT FARMINGTON, UTAH, SO THAT IT MAY BE MADE TO FUNCTION MORE COMPLETELY IN HOLDING BACK SAND AS WELL AS GRAVEL AT FLOOD TIME, AND ALSO TO PROVIDE MORE ASSURANCE OF PROTECTION AGAINST TORRENTIAL FLOODS DOING DAMAGE TO HIGHWAYS, RAILROAD, AND FARM PROPERTY.

FRED C. SCOBEEY LEFT BERKELEY APRIL 7 FOR NORFOLK, VA., TO ATTEND A MEETING OF THE A.S.C.E. HE WILL SPEND SOME TIME IN WASHINGTON, D.C.,



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1890

1872



AT IOWA CITY, AND AT FORT COLLINS, COLO., INSPECTING HYDRAULIC LABORATORIES. IT IS EXPECTED HIS TRIP WILL TAKE THE BETTER PART OF A MONTH.

A. A. YOUNG REPORTS THAT WATER-SPREADING CONTINUED THROUGHOUT THE MONTH OF MARCH AT THE TWO EXPERIMENTAL SPREADING PLOTS AT THE MOUTH OF SAN GABRIEL CANYON NEAR AZUSA, CALIF. THE PLOT COVERED WITH GRASS AND BRUSH CONTINUED TO ABSORB WATER AT A RATE OF ABOUT 7 ACRE-Feet PER ACRE PER DAY THROUGHOUT THE MONTH. THE MAXIMUM RATE OF ABSORPTION FOR THE PLOT WITHOUT VEGETATION WAS FROM 2 TO 3 ACRE-Feet PER ACRE PER DAY. THE WATER-SPREADING PROJECT ON THE EXPERIMENTAL PLOT AT AZUSA WILL BE CLOSED DOWN FOR LACK OF WATER AT LEAST TWO MONTHS EARLIER THIS YEAR THAN LAST. MR. YOUNG LEFT SANTA ANA, CALIF. APRIL 2, FOR BONNERS FERRY, IDAHO, WHERE HE WILL ASSIST MR. JESSUP FOR THE NEXT SEVERAL MONTHS ON THE KOOTENAI PROJECT INVESTIGATIONS.

THERE ARE AN UNUSUAL NUMBER OF INQUIRIES THIS YEAR FOR INFORMATION ON PUMPING. THE RAINFALL THROUGHOUT THE WEST IS ONLY FROM ONE-HALF TO TWO-THIRDS NORMAL, AND UTILIZATION OF UNDERGROUND WATER FOR IRRIGATION WILL PLAY AN IMPORTANT PART IN MEETING THE IRRIGATION REQUIREMENTS. CALIFORNIA AND TEXAS ARE THE TWO FIELDS IN WHICH PUMPING SEEMS TO BE RECEIVING MOST ATTENTION BY THE FARMERS.

CONSIDERABLE ATTENTION HAS BEEN GIVEN BY THE BERKELEY OFFICE DURING THE PAST FEW MONTHS TO THE PROBLEM OF THE WATERSHED AS AN IMPORTANT FACTOR OF THE IRRIGATION WATER SUPPLY. SOME PRELIMINARY RESEARCH STUDIES ARE TO BE STARTED THIS SPRING IN SOUTHERN CALIFORNIA IN COOPERATION WITH THE FOREST SERVICE, HAVING TO DO WITH THIS PROBLEM. THE IRRIGATION COMPANIES IN MANY OF THE WESTERN STATES ARE EVIDENCING A VERY MUCH KEENER INTEREST IN WATERSHED MANAGEMENT THAN EVER BEFORE AND IN SOME STATES LEGISLATION HAS BEEN PROPOSED WHICH WOULD MAKE POSSIBLE THE CONTROL OF WATERSHEDS BY THOSE INTERESTED IN THE USE OF WATER ARISING WITHIN THEM AND PUT TO AGRICULTURAL USES. IN SOME INSTANCES WATER IN CANYONS IS BEING PIPED TO REDUCE THE USE OF THE WATER BY VEGETATION OF NO OR AT MOST LITTLE COMMERCIAL VALUE. IN SOME OF OUR PRELIMINARY WATER-SPREADING STUDIES, THE VALUE OF SOME TYPE OF FOREST COVER, INCLUDING BRUSH AND GRASS, IN RETAINING THE PERMEABILITY OF THE SOIL TO RAINFALL OR WATER ARTIFICIALLY APPLIED HAS BEEN DEMONSTRATED. THE MANAGEMENT OF THE WATERSHED IN CONJUNCTION WITH WATER SUPPLY PROBLEMS INVOLVES MATTERS OF FOREST MANAGEMENT AS WELL AS OF AGRICULTURAL ENGINEERING.

M. R. LEWIS SUBMITTED A REPORT PREPARED BY HIMSELF AND ARTHUR KING, EXTENSION SPECIALIST IN SOILS, OF THE OREGON AGRICULTURAL COLLEGE, ON IRRIGATION IN WESTERN OREGON. THIS IS INTENDED FOR PUBLICATION IN AGRICULTURAL ENGINEERING. MR. LEWIS DEVOTED A PART OF HIS TIME DURING MARCH TO DESIGN OF THE IRRIGATION SYSTEM FOR THE NEW EXPERIMENT STATION AT HERMISTON, OREGON.

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ARCH WORK REPORTS THAT UNDER THE DIRECTIONS OF OUR DIVISION, 41 LINED TEST WELLS HAVE BEEN INSTALLED BY THE OWNERS OF AN ORCHARD IN THE ROGUE RIVER VALLEY, OREGON, WHICH HAS BEEN IN NEED OF DRAINAGE FOR YEARS. AT LEAST 20,000 FEET OF TILE HAD BEEN INSTALLED IN THIS ORCHARD AT VARIOUS TIMES, WITH LITTLE OR NO SUCCESS. SOME VERY IMPERVIOUS SOIL OF CONSIDERABLE DEPTH IS FOUND ON THIS TRACT AND SUCCESSFUL DRAINAGE WILL CALL FOR CLOSE STUDY OF ALL THE FACTORS INVOLVED. SINCE THIS CONDITION IS TYPICAL OF OTHER ORCHARDS IN THE MEDFORD AREA, IT HAS BEEN DECIDED TO STUDY THE PROBLEM IN DETAIL. CAREFUL LOGS OF THE 41 TEST WELLS ARE BEING KEPT. MANY OTHER TEST WELLS HAVE BEEN BORED IN OTHER ORCHARDS, FOR THE GENERAL WATER-TABLE SURVEY THAT IS BEING CONDUCTED.

C. E. RAMSER IN COMPANY WITH R. E. UHLAND OF THE BUREAU OF CHEMISTRY AND SOILS AND PROFESSOR H. H. KRUSEKOPF OF THE UNIVERSITY OF MISSOURI MADE AN EXAMINATION OF EROSION CONDITIONS ON THE SNI-A-BAR FARM ABOUT 20 MILES EAST OF KANSAS CITY, MO. AND PREPARED A JOINT REPORT RECOMMENDING METHODS OF EROSION CONTROL. THIS FARM CONTAINS 1,750 ACRES NEARLY ALL IN PASTURE WHICH IS BADLY CUT UP WITH NUMEROUS GULLIES.

E. E. STEWART REPORTS THAT OVER TWO WEEKS OF FAVORABLE WEATHER HAS PERMITTED THE COMPLETION OF CORN PLANTING AND THE BEDDING OF THE COTTON GROUND ON THE TEXAS BLACKLAND SOIL EROSION EXPERIMENT STATION. RUN-OFF AND SILT MEASURING DEVICES ARE BEING INSTALLED ON THE LAST TWO EXPERIMENTAL TERRACES. U. S. CONGRESSMAN O. H. CROSS SPENT MOST OF THE DAY APRIL 7, VISITING THE STATION.

CORN PLANTING HAS BEEN FINISHED AND COTTON PLANTING STARTED ON THE TYLER PROJECT. R. W. BAIRD REPORTS THAT LIGHT INTERMITTENT RAINS HAVE INTERFERED TO SOME EXTENT WITH FARM OPERATIONS BUT HAVE PRODUCED NO APPRECIABLE RUN-OFF FROM THE EXPERIMENTAL TERRACES.

H. S. RIESBOL REPORTS YIELDS OF 125.4 POUNDS AND 83.6 POUNDS OF LINT COTTON, RESPECTIVELY, FROM TWO COMPARABLE VIRGIN AND BADLY ERODED AREAS, THE YIELD ON THE VIRGIN AREA BEING 50 PER CENT GREATER THAN ON THE ERODED AREA. IT IS BELIEVED THAT THIS DIFFERENCE WOULD HAVE BEEN CONSIDERABLY GREATER DURING A SEASON MORE FAVORABLE FOR COTTON.

TWO SNOW STORMS DURING MARCH GREATLY INTERFERED WITH FIELD OPERATIONS ON THE BETHANY FARM AS REPORTED BY C. K. SHEDD. HOWEVER, FIELD CONDITIONS IMPROVED RAPIDLY AFTER THE LAST SNOW AND SATISFACTORY PROGRESS HAS BEEN MADE WITH FARM OPERATIONS AND EXPERIMENTAL FIELD WORK.

R. A. NORTON REPORTS THAT DRILLING OF OATS HAS BEEN COMPLETED ON THE CLARINDA FARM. NO EXPERIMENTAL WORK WILL BE STARTED ON THIS FARM UNTIL AFTER JULY 1. A TOPOGRAPHIC SURVEY HAS BEEN STARTED AND A MAP WILL BE PREPARED.

P. C. MCGREW HAS BEGUN LAYING OUT AND CONSTRUCTING TERRACES ON THE PULLMAN FARM IN ACCORDANCE WITH PLANS FOR ENGINEERING EXPERIMENTS RECENTLY PREPARED. TERRACING ON THIS FARM IS PURELY EXPERIMENTAL SINCE THERE IS NO RECORD OF TERRACES OF THE RIDGE TYPE EVER HAVING BEEN EMPLOYED SUCCESSFULLY ON SUCH STEEP SLOPES. PARTS OF TERRACES WILL





BE BUILT ON SLOPES AS STEEP AS 35 PER CENT. A RAIN OF 1.94 INCHES FELL IN 34 HOURS ON MARCH 30 AND 31 WHICH IS ONE OF THE LARGEST RAINS IN 38 YEARS RECORD AT PULLMAN. THE MAXIMUM RAINS FOR A ONE HOUR PERIOD WAS .18 INCHES. CONSIDERABLE EROSION TOOK PLACE ON FIELDS IN WINTER WHEAT AND ON GROUND PLOWED LAST FALL BUT PRACTICALLY NONE ON STUBBLE GROUND. TWO GRADED TERRACES WHICH WERE ONLY PARTLY CONSTRUCTED HANDLED THE RUN-OFF SATISFACTORILY.

THE FOLLOWING NEW BOOKS HAVE BEEN RECEIVED BY THE LIBRARY:

ARKANSAS. GEOLOGICAL SURVEY.

STREAM GAGING IN ARKANSAS FROM 1857 TO 1928, BY W. S. FRAME. LITTLE ROCK, 1930. 141 P. ALL AVAILABLE RECORDS OF THE FLOW OF STREAMS IN THE STATE ARE BROUGHT TOGETHER IN THIS REPORT, WHICH IS TO SERVE AS A BASIS, FOR FUTURE REPORTS ISSUED ANNUALLY AS ADDITIONAL DATA ARE OBTAINED.

CHAPMAN, F.T.

STUDY OF THE INDUCTION MOTOR. N.Y., JOHN WILEY & SONS, INC., 1930. 289 P. SCOPE OF THE BOOK RESTRICTED TO MACHINES WITHOUT COMMUTATORS - NO REFERENCE MADE TO PROBLEMS OF HEATING. ROTATING FIELD THEORY ADOPTED.

CREW, HENRY AND SMITH, K.K.

MECHANICS FOR STUDENTS OF PHYSICS AND ENGINEERING. MACMILLAN COMPANY, 1930. 371 P.

FERRUM.

WATER POWER AROUND THE WORLD. LONDON, PERRIN'S LIMITED, 1930. 245 P. NO PRETENSIONS TO BEING AN EXACT STUDY OF DEVELOPMENT OF WATER POWER RESOURCES OF THE WORLD. MERELY TO REVIEW AND ACT AS A BASIS FOR MEASURING TENTATIVELY WHAT HAS BEEN ACHIEVED IN THE TECHNICAL AND ECONOMIC DEVELOPMENT OF WATER POWER.

INSTITUTION OF CIVIL ENGINEERS; SELECTED ENGINEERING PAPERS, 1929.

- No. 69. DOWNING, F.W.H. , ISLAM WEIR, SUTLEJ VALLEY PROJECT, 16P.
- No. 70. FINCH, W.O. REMARKABLE ARTESIAN BORING. 14 P.
- No. 71. CHATLEY, H. PROBLEMS IN THE THEORY OF RIVER ENGINEERING, 23 P.
- No. 74. PARRY, E. OSCILLATIONS OF PRESSURE IN PIPE-LINES DURING CLOSURE. 18 P.
- No. 77. BULLMORE, A.W.E. LETCHWORTH WATERWORKS; WITH PARTICULAR REFERENCE TO THE SINKING OF BORE-HOLES AND WELLS. 12 P.
- No. 84. PASHLER, A.J.P. DEVELOPMENT OF HEATING OF BUILDINGS AND THE ADVANTAGES AND DISADVANTAGES OF VARIOUS HEATING SYSTEMS. 16 P.

PAUSTIAN, P.W.

CANAL IRRIGATION IN THE PUNJAB; AN ECONOMIC INQUIRY RELATING TO CERTAIN ASPECTS OF THE DEVELOPMENT OF CANAL IRRIGATION BY THE BRITISH IN PUNJAB. N.Y., 1930. 181 P.

